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AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY AND MINES.

ESTABLISHED 1831.

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AMERICAN RAILROAD JOURNAL.
OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance*.

RATES OF ADVERTISING.

One page per annum		$125 00
One column	"	50 00
One square	"	15 00
One page per month		20 00
One column	"	8 00
One square	"	2 50
One page, single insertion		8 00
One columnn	" "	3 00
One square	" "	1 00
Professional notices per annum		5 00

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4-10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for 1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3·50 and	$3·00
" " Reading,	58	2·25 and	1·90
" Pottsville "	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 35ly

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

SUMMER ARRANGEMENT, April 1, 1847.

PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 5 P.M.
Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 6-20 P.M.
Leave Haverhill at 6½ A.M. and 4½ P.M.

READING TRAINS.

Leave Boston at 8½ A.M. and 8½ P.M.
Leave Reading at 6 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal*, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

1y31 CHAS. MINOT, *Sup't.*

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13tf

NORWICH AND WORCESTER RAILROAD. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a. m., and 4½ p. m. Leave Worcester, at 8½ a. m., and 4½ p. m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the steamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quantities of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J. W. STOWELL, Sup't.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles connecting at Xenia and Springfield with Messrs. Neil, Moore & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columbus, Delaware, and the Mansfield and Sandusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sundusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Davidson House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

The 1¼ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

s7tf W. H. CLEMENT, *Sup't.*

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....$9
Or via Lancaster by railroad.....10
Through tickets to Harrisburg or Gettysburg..3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles. This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiania only.

Leave City Hall for Harlem, Morrisiania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 20, 4, and 4 50 p.m.

Leave Morrisiania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.
Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the *Morning* Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m.

J. R. TRIMBLE,
2tf *Engineer and General Superintendent.*

GEORGIA RAILROAD, FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga, and Dalton. 250 miles.	Between Charleston, Oothcaloga, and Dalton. 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot.....	$0 16	$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.	8 50	13 50
	" " barrel....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack..		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. s44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlantic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion)	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to
1y14 STOCTON & FALLS, Agents.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, *Agent.*

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 105 Chesnut street.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

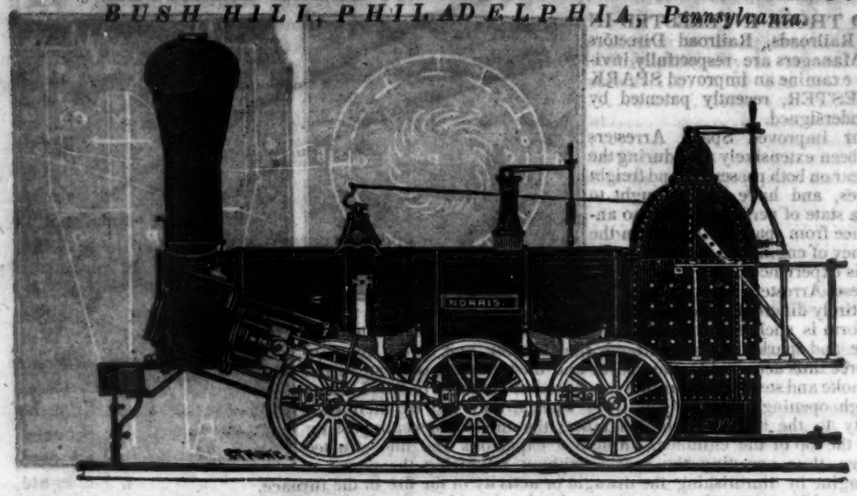
*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.
ja45

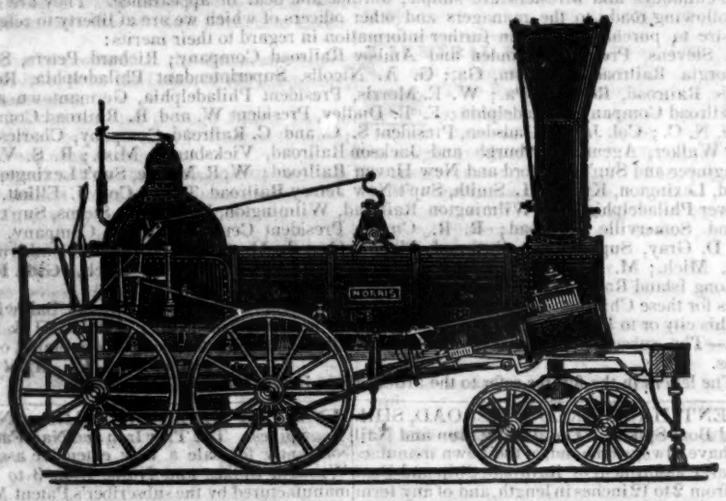
SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent,*
1y Albany Iron and Nail Works,

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.





MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15	inches	Diameter of	Cylinder,	× 20	inches	Stroke.
"	2,	14	"	"	"	× 24	"	"
"	3,	14½	"	"	"	× 20	"	"
"	4,	12½	"	"	"	× 20	"	"
"	5,	11½	"	"	"	× 20	"	"
"	6,	10½	"	"	"	× 18	"	"

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Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

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Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

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Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

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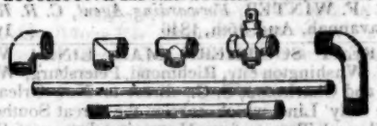

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28tf J. BALL & CO.

Iron Manufacture.

ELECTRO METALLURGY.

(Continued from page 296)

The following interesting experiments were made at Milton Iron Works, by Mr. Hawthorne, the Manager, in presence of the Proprietor and others, during the month of December, 1844. A copy was handed to Mr. Wall while on a visit there in the following March.

Non-electrised.

Bars.	Breaking weight.	Deflection.
No. 1	491¼	1,521
2	533¼	1,710
3	512¼	1,550
4	582¼	1,650
5	568¼	1,630
6	540¼	1,550
	3120	9,611

Electrised.

Bars.	Breaking weight.	Deflection.
No. 1	603½	1,700
2	617½	1,870
3	603½	1,760
4	668½	1,760
5	554½	1,630
6	668½	1,753
	3716	10,473
Non-elect. deducted,	3220	
Total difference,	487	

Average difference per bar, 81,166

The next trials took place at Butterly, Codnor Park, Derbyshire, at the Iron Works belonging to Mr. W. Jessop. But they were, in all respects, so similar to those at Milton, that in order to avoid a tedious repetition, we will not enter into details, as the testimony of the respected proprietor, in a letter to a friend of the patentee, on the results, will be amply sufficient.

Butterly, June 21, 1844.

Dear Sir: I forwarded to you a piece of puddled iron in the rough bar, made from pig iron which had been electrised by thirty-two jars, and it is as good a specimen of puddled iron as I ever saw. It was puddled the day after you were at Condor Park. I cannot understand how electricity should act on the iron, but it certainly has a good effect in purifying the iron from the extraneous matter with which it is alloyed. I must leave it to Dr. Ure to explain the phenominon. All the work people agree in the fact.

I am, dear sir, your's truly,
W. Jessop.

The following report was given by Dr. Ure soon after the experiments at Butterly:

London, 13 *Charlotte St., Bedford Square,* *July* 13, 1844.

Mr. Wall's patent process for improving iron is founded on the well-established fact, that when a compound is subjected to an electrical current, its negative and positive elements are detached from one another. Crude iron contains more or less carbon, sulphur, phosphorus, arsenic, silicon, oxygen, bodies all electro-negative in relation to iron, which is electro-positive. When impure iron, as it flows from blast furnaces, is subjected, during its cooling and consolidation, to a powerful stream of voltaic electricity, the chemical affinities by which its various heterogeneous components are firmly associated, are immediately subverted, whereby, in the case of crude iron, the sulphur and phosphorus, which destroy or impair its tenacity and malleability, become readily separable in the act of puddling. On this principle, I would explain the extraordinary effect of Mr. Wall's patent electric process, as performed in my presence in the excellent iron works of Mr. Jessop, at Condor Park, Derbyshire, where the electrised forged pigs discharged those noxious elements so copiously in the puddling furnace as to become, after a single re-heating, without piling or faggotting, brilliant bars of the finest fibrous metal. The bars so made have been subjected, under my inspection, to the severest proofs, by skilful London blacksmiths, and they have been found to bear piercing, hammering, bending and twisting, as well as the best iron in the market. I have analysed the said iron with the utmost minuteness of chemical research, and have ascertained it to be nearly pure metal, containing neither sulphur or phosphorus, and merely an inappreciable trace of arsenic. I can, therefore, conscientiously recommend Mr. Wall's patent process to ironmasters, as one of the greatest, easiest, and most economical improvements which their art has ever received.

The pecuniary advantages of this process, in respect to saving of labor and waste of material, has been estimated by competent judges at from one pound to two pounds sterling per ton.

The effect of electrising iron is displayed in a singular manner by the conversion into steel of a soft rod, exposed, in contact with coke, for a few hours, to a moderate red heat —a result which I have witnessed and can fully attest.

Andrew Ure, M.D. F.R.S.
Prof. Chemistry and Analytical Chemist.

In further confirmation of the concluding paragraph of Dr. Ure's report, is the sujoined attestation.

Manning's Foundry, Blackwall, *July* 16, 1844.

We, the undersigned, do hereby certify, that we were present and saw Mr. Wall put a bar of iron, one inch broad by one-quarter of an inch on the edge, and two feet long, into a crucible, and in four hours it was taken out perfect *blistered steel.* During the process of conversion a small voltaic battery was applied, to which we attribute the results of the experiments. It is our joint opinion that no iron could be converted into steel in so short a time by the mere application of heat and carbonaceous matter as is generally used in that process.

B. Manning,
Proprietor.
Wm. Timmons,
Head Blacksmith, who worked the bar of steel.

The satisfactory results of the trials which have been enumerated, produced an impression novel as it was gratifying. A new era was pronounced to have commenced in the metallic departments, and if the plan were fairly dealt with, the market would soon be freed from that brittle and delusive article which had so long been imposed upon it.—When its efficiency, also, which had been so incontestibly established, was considered in conjunction with the simplicity of its arrangement, and the trivial cost required for its purchase, all were unanimous as to the propriety of adopting so beneficial an agent. The consequences may be anticipated. Mr. Wall was literally besieged by the most pressing invitations from every part of the country: so that it become a matter of some difficulty how to act, or in what direction to proceed. Priority of application was the rule adopted, and as Wm. Scholefield, Esq., of Parkgate, stood first on the list, Mr. Wall proceeded to his establishment, where he arrived on the 27th of July, 1844.

The following day the first experiment was tried. To a mass of seven tons, was applied a battery consisting of forty pairs of platinized silver and zinc, eight inches by four, or more accurately, an exposed surface of six inches by three and a half, after deducting tare for clamps, etc. On the poles being brought into contact, vived brushes of electricity were observable even in broad daylight. The two iron conductors attached to the pole wires issuing from the battery, and which were intended to convey the electritity to the molten mass, were found to be completely soldered together, and required the utmost exertion to separate them. The operations of such a battery were watched with the most intense interest, and the highest expectations were entertained of the results.—And they were fully answered. The metal, when afterwards puddled, hammered, and rolled, was found to be of the most excellent quality; its strength and fibre astonished all present, and the proprietor himself declared that he would not have believed it, had he not been an eye witness.

To give a narative of the numerous and almost daily trials which took place at these works up to the end of February, 1845, would be tedious to the reader, and indeed superfluous. It would be more interesting to peruse the correspondence which passed between Mr. Wall and Mr. James Geach, manager of the furnaces, who superintended the battery, and minutely watched every trial during that period. His testimony will be unhesitatingly admitted by all who are acquainted with him, and his opinion, while emanating from one fully competent to decide, will not be suspected of any undue bias.

The following is the letter sent by Mr. Geach after Mr. Wall's departure.

Parkgate Iron Works, Rotheram, *August 9th*, 1844.

Dear Sir: I received yours in due course of post, and in answer, beg to state that Mr. Manning (Mr. Wall's assistant) is getting on well, and wrote you yesterday according to

your desire, and stated that the Earl Fitz-William called here the evening before, with his steward, Mr. Birom. I showed him some of the samples of the electrised iron, such as the specimens you took with you, at which he appeared much pleased, and wished to see some trials made himself, and desired me to let him know when you were coming here again, that he might meet you. I am happy to say the results of the iron are as usual. I had a cast of mottled metal electrised on the morning of your leaving for town, and that proved as good as the Nos. 3 and 4; and was worked together with them without at all deteriorating the manufactured article.—Perhaps white iron may answer in the same ratio, but not having had any, I cannot say further. On reading Dr. Ure's report in your's of yesterday, I can but add my testimony on the results of the iron flowing from the furnace into the beds, and being electrised —then being puddled, shingled and bolted down into billets, and four inch bars: and the fracture caused in breaking, compared with that of iron made in the ordinary way, is as *best* or *best best* to common. The cheapest and least troublesome way is, in my opinion, to connect the poles of the battery to the blast furnace, and electrise the iron therein before tapping, and then run it into pigs in the usual way. Some experiments were tried when you were here in that way, and the results were, that the iron was quite as good, if not better, than that ran into the beds and electrised afterwards. I have made sixty or seventy tons more or less of this pig iron, and plates of iron, and invariably find it to be of excellent quality. Several specimens of Parkgate iron you have with you of experiments made at these works, wtil fully prove my assertions; and I consider it one of the best, easiest, and greatest improvements ever made in the manufacture of iron, by expelling all the sulphur, arsenic, etc., when in its crude state, before its being brought to the puddling furnace; and that a great saving will be effected in the manufacturing department.

I am, dear sir, yours respectfully,

JAMES GEACH.

The following are but extracts, as the letters contain other matters irrelevant to the subject under consideration.

Parkgate Iron Works, Dec. 4, 1844.

DEAR SIR: I am happy to inform you that no other iron is to be used at these works but that which has been electrised. We made some *best best* boiler plates from scrap iron last week, in the regular way; and some of the electrised iron, made into bolts, and reheated, and rolled off made much better than that. Our bars, sheets, etc., are all as good as can be wished for. I had almost forgot to say, some of our puddled bars have been sent into Staffordshire for trial, of which I have specimens, and can assure you they are most excellent. The Staffordshire gents, as far as I can understand, do not know what to make of it, not having seen the process as yet; but I think you might do some good among them were you to try.

JAMES GEACH.

Parkgate Iron Works, Dec. 20, 1844.

DEAR SIR: At Milton, Messrs. Graham have decided on keeping the battery on, and it was put to work again last Tuesday. For some weeks previously, they had been trying the strength of the metal after being electrised, and *vice versa* with puddling also.—Here we use all electrised iron, and I am happy to say, with such results, as have quite dumb-founded *all* who had so much to say against it. There was a trial yesterday by simple puddling, and ball-furnacing. then rolling into sheets, plates and bars, finished iron, and I can now aver that it is *better* than any of the best *best best* iron that was ever made on these works since they first started.

JAMES GEACH.

In conformity with the above extracts, might be cited the testimony of Dr. Dyson, the superintendent of the works. The apprehensions, however, of this gentleman, respecting the invention, were novel and somewhat ludicrous. He maintained that in the event of its adoption, an universal and confused equalization would take place; the countries now producing bad ore and worse metal, would be on a par wtth those which sent the best article into the market. The process of reasoning by which it is attempted to show that an invention, which improves what is defective, deteriorates what is good, is difficult to comprehend; and we can but lament a state of things, in which such arguments are allowed to prevail in opposition to the improvements which genius and industry would introduce into science and art. To make the *best best* iron from common cinder, without admixture of rich ore or purer metal, has hitherto baffled the efforts of iron-masters. This, electricity has, in a great measure, achieved by forcing this refuse or peroxide of iron to give up its oxygen without any mixture, and thus bringing it almost to an equality with common merchant iron. But if such be the effects of the application of electeicity to an inert and apparently useless mass of refuse, what must be the results of its action on good ore and superior metal. Or are we to suppose that it will be less efficient where there are fewer obstacles, and where its sphere of action is more favorable. Such reasoning is on a par with the excuses which were alledged for discontinuing the use of the battery at another great establishment, after the most convincing proofs of its efficiency and utility.

Among the numerous applications received by Mr. Wall, was one from Sir John Guest, the proprietor of the extensive works at Dowlais, in Wales. Well versed in chemistry, and familiar with the phenomena of electricity, Sir John, on reading the report of Dr. Ure, entered into the full merits of the question and convinced of the efficiency and importance of the discovery, at once proposed to enter into arrangements for a share in the patent. But a decided negative was given, on grounds highly creditable to Mr. Wall, who immediately saw that such a proceeding would materially injure, if not destroy, all the small manufacturies, scarcely able, in the actual state of things, to co-exist with the colossal establishment of the Welsh leviathan.

However, a trial was solicited and agreed upon; and on the 28th of August, 1844, Mr. Wall, having procured a battery of platinized silver and zinc of 100 pairs, eight inches by three and a half, left London, accompanied by an assistant, and arrived at Dowlais the following day.

Fortunately Sir John was at Dowlais, and Mr. Wall was directed by him to proceed to the works, where he would meet the superintendent, who had orders to render every assistance in his power. After a few preliminaries the battery was arranged for operations.

August 30, 1844.

"I had, says Mr. Wall, a small quantity of metal electrised to-day, in presence of the manager's son, as a prelude to further and more extensive operations. It was afterwards puddled with every care and attention; afterwards it was squeezed and rolled into puddled bars. Not a flaw was to be seen on the edge, nor indeed any of that deformity and brittleness observable in their ordinary metal. When cold, it was tested by breaking, and showed a fibre and tenacity equal to the best merchant bar. There was but one opinion on the subject, all the puddlers declared it to be the very best specimen of puddled bar which had ever been seen at their works. I was naturally desirous of preserving some specimens of this my first experiment here, for the purpose of showing them to Sir John Guest, as also to the head manager, who was confined to his house by sickness; but the said specimens were never seen afterwards, and when asked for could not be found. For the solution of the mystery, the succeeding experiments will enable the reader to form tolerably accurate conjectures.

September 4, 1844.

"A trial was made this day with twelve pairs of a Smee's battery on a lot of pig iron about 700 weight: the electricity being passed in a continuous stream through the mass. But at the end of 20 minutes I was obliged to desist, as the metal had become set. This I had never before observed to occur in so short a time. However I soon ascertained the cause to be the porus nature of the bed in to which the metal was run, being a compound of sand and half-pulverized coke cinder. This doubtless materially affected the results, as the battery was not allowed sufficient time to throw off the sulphur, etc., before the metal became consolidated. Besides the composition forming the bed for the metal, possessing a strong conductive power, impaired the effect of the electrical action. I have found metal, when in large quantities, and in sand beds, more effected by electricity produced from an ordinary battery of twenty-four pairs, than a few hundred weight acted upon by a battery of 50 pairs, when in a bed composed of the above materials. The larger quantity of metal, remaining longer in a fluid state, absorbs a greater portion of electricity, while the sand of which the bed is made prevents all escape of excess; whereas the rapid settling of a small quantity, checks

the electrical action, and the consolidated bar becomes itself a conductor, and dissipates the electric force amid the surrounding compound forming the bed. Although I was dissatisfied in my own mind, I allowed matters to proceed; and accordingly the electrised metal was puddled this afternoon, at the same time with some of the ordinary metal from the same furnace. This process had not long commenced, before appearances indicated some irregularity in the proceedings. The manager, who was present, was the first to express a remark on the occasion, and observed that the furnace the electrised metal was in seemed cold, as compared with the other furnaces, and that the metal did not boil.—Nor was it intended to boil. My assistant chanced to hear the order given to the puddlers; the words were, 'Not to give the metal too much heat!' words intended, and well understood to convey a meaning beyond their literal import. In fulfilment of the injunction, no sooner had the metal assumed a semi-fluid state, about fifteen minutes after being thrown in, when the damper was let down on the chimney, and so effectually as to drive the flames out at the rake hole over the grate, even to the hindrance of the puddler in his duty. The electrised iron was kept in the fire 20 minutes longer than the charge of ordinary metal, which, when taken out was squeezed and rolled in the usual manner, and presented the appearance of good iron. The electrised came out of the furnace scarcely balled, and held together only by means of the wheelbarrow full of cinder thrown in as its puddling compliment. I need scarcely tell the result. It was squeezed as far as possible from the cinder, and when it was attempted to pass it under the roller, it crumbled in numerous fragments. I complained to the manager of the unfair treatment which this charge had received, and another charge of each metal was ordered to be worked.—The person who had given the order on which I made a remark, was dismissed from his post, and another was appointed to superintend the puddling of the electrised metal. He worked the furnace much more efficiently, while not half the quantity of cinder was used in the process. The result was in every way satisfactory, and particularly gratifying from the circumstance of Sir John Guest arriving just at the time the rolling took place. As so favorable an opportunity might prove decisive, several trials and tests took place, and every means put in force to show the real qualities of the metal. My expectations were fulfilled, and the superiority of the process was triumphantly established."

It were useless to continue the narative of the proceedings at Dowlais. The above extract is sufficiently conclusive of the efficiency and advantages of the process, and any further details would be only a tedious monotony. However, before proceeding to the illustration of the remark before made, respecting the application of the process to the peroxide of iron, it may not be uninteresting to give the results of a week's operations at the above named works.

Returns of puddled bar of electrised pig metal at Dowlais, ending December 21st, 1844:—

Dec. 17.	Tons.	Cwt.	Qrs.	Lbs.	Charges.
Tuesday,	13	15	4	9	78
Do. night,	11	11	1	0	62
Wednesday,	13	15	0	7	72
Do. night,	13	10	0	23	71
Thursday,	13	3	1	21	73
Do. night,	13	12	0	20	70
Friday,	14	9	2	1	76
Do. night,	12	6	2	22	65
Saturday,	15	10	0	20	80
	115	5	1	11	

Of Dowlais ordinary pig metal it requires to make a ton—

	Cwt.	Qrs.	Lbs.
Of puddled bar,	25	0	0
Of Wall's electrised pig,	23	2	5
	1	1	23

	Tons.	Cwt.	Qrs.	Lbs.
Product as above,	115	5	1	11
Total gain,	8	14	1	0

The above is an ordinary diurnal return of the operations during the use of the battery, and furnished by parties connected with the establishment.

The facts which have hitherto been adduced, were principally intended to demonstrate the advantages, of the application of Mr. Wall's process in improving the quality and simplifying the manufacture of iron. But there are other results not less worthy of notice, as being equally important and beneficial.

It is well known to iron manufacturers that the operations of the blast furnace are very powerfully affected by the state of the atmosphere, and that the changes of the barometer are invariably answered by corresponding alterations in the appearance and quality of the metal produced. This influence extends even to the furnace itself, which at different periods is found to sour, and exhibit other symtems of derangement. In rainy, louring or stormy weather, the cinder, the test as it were of the metal, is observed to be of a dark color, rough and lumpy, and emitted more vivid scintillations during its transmission from the furnace to the sand bed or receptacle. On the other hand, when the weather has set in fair or frosty, it becomes thin, of a bright appearance, smooth, and of a fuller consistence. This difference is very striking on any *sudden* alteration of the weather, on any occasion of any preponderance of either the *positive* or *negative* electricities in the atmosphere. "I have known the men," says Mr. Wall, "foretell the weather from the appearance of the cinder, more correctly than either Moore or Murphy." Aware of these facts, he continues, and convenced of the active agency of electricity in the cause, I naturally felt a great interest in watching the effect of a well regulated battery on such occasions. In the ordinary mode of manufacturing, any excess or deficiency in the concomitant materials, as of limestone for example, produces in a few hours an important change in the quality of the metal produced. These different sorts are designated by the terms, white, mottled, gray, etc. For the purpose of experiment, therefore, I caused the feeds or charges of the smelting furnace to be frequently varied; sometimes the quota of lime stone was increased or lessened to an extent of one-fifth beyond the usual complement. At other times a similar proceeding was observed in regard to the ore. Still, where the action of the battery was regularly kept up, scarcely an alteration was perceptible; and it was not until the lapse of three or four days, that any material change was to be observed. On the other hand, when the smelting furnace was regularly supplied, and the charges uniform, not any variations in the atmosphere, however sudden and determinate, caused the slightest alteration. The metal was the same, the cinder equally smooth and clear in damp and stormy, as in dry and frosty weather. The regularly maintained action of the battery, counteracting all excess in the relative condition of the two electricities, preserved an equilibrium in the working of the furnace which delivered out its contents in one unchanged state and quality. In the ordinary process also, it was by no means rare to find Nos. 2, 3 and 4, together in the *same* bed, from the *same* tapping; owing to a derangement in the furnace, and an unequal distribution of carbon; while the electrised charges were alike in every particle, without mixture or alloy. This last circumstance was most satisfactorily shown, continues Mr. W., while I was operating at Dowlais during the early part of the month of December, 1844. On this occasion there were four furnaces, each working according to a different arrangement, and each fed by a distinct species of ore. The one making white or inferior metal, was selected for the experiment. The charges were ordered to be kept regular night and day. Although apparently indifferent, I was not inattentive, and felt confident of the result. At the end of twenty-four hours a change was visible. At first, a dull white, then a mottled, and lastly a No. 3 gray pig made its appearance, and this, be it remembered, from a furnace arranged and charged for *white* or *inferior* metal. There was the fact, evident, undeniable. But it was destined not to be long in view. It could not be disputed, but it might be counteracted. And so it was. No sooner was the phenomena espied by a certain official of the establishment, than an order was issued to alter the charge. This order was carried out in such a manner as to leave out all consideration of regularity or system in the feeding or working of the furnace. I myself saw the *feed-board*, or diary, and I was astonished at the utter recklessness which it exhibited.—However, the facts sought after, were found and confirmed, and I did not think it worth while to enter into a discussion of motives, as it would neither remedy the matter, nor benefit science."

Another and most valuable boon conferred by Mr. Wall's process, is an increase in the product of metal from any given charge of the furnace, as compared with the ordinary mode of manufacture. An effect, as simple in its cause, as beneficial in its consequences.

The action of the battery, penetrating with the most active and subtle influence the whole melting mass, arrests, by dislodging it from its natural combination in the ore state, every particle of metalic substance; the molecules rush to each other from the exaltation of their affinities, and are thus prevented from running off in the form of a peroxide. As much as six per cent. of metal has been discovered by analysis in the slag or refuse from an ordinary worked furnace. This effect was particularly noticed during the experiments at Milton Iron Works. In the course of a few tappings, after the application of the battery, a difference was observed in the relative qualities of the metal and slag. The former appeared better, and the latter clearer. This circumstance was soon remarked by the furnace servers, as well as the manager, and at the end of a week, the metal product of the furnace was found to have increased, without any alteration in the charges, in the proportion of seven to nearly nine.

But there is yet another purpose more novel and interesting than any hitherto mentioned, to which Mr. Wall's process has been successfully applied.

Whoever has visited any of the great iron establishments, cannot fail to have observed the enormous heaps of refuse surrounding the furnaces, and in some places almost precluding all approach or passage to the various departments of the works. This hitherto useless mass, Mr. Wall has restored to notice, has drawn forth its neglected worth, and by the magic agency of electricity, has transformed an unsightly encumbrance into a valuable acquisition.

The first experiment took place at Dowlais on the 12th of November, 1844. The authorities directing that vast establishment, had witnessed and repeatedly been compelled to acknowledge the beneficial effects of the process in the more important branches of the manufacture of iron; but they could not be induced to adopt it, or reap the advantages to be derived from the use of it. However, on such a proposal, which seems to have been selected from its supposed impracticability, being accepted by Mr. Wall, they appear to have been somewhat puzzled; but doubtless relying on the futility of the experiments, they positively declared, that, if he succeeded in rendering the refuse available for any purpose, the battery should be immediately adopted throughout the establishment.

Experiment.—To two-thirds of slag or refuse was added one-third of No. 3 pig iron, in the puddling furnace. When the charge had reached a semi-fluid state, eight pairs of a Smee's battery, arranged according to the principle of intensity, were applied by means of two wires attached to the pole rods of the battery. To one of the rods was fastened a non-conducting handle, which projected thro' the rake hole of the furnace, and was occasionally put in motion. The other was passed through the roof, so as to dip into the melting mass. The battery was kept in action about half an hour, or until the metal began to ball, when the electric process ceased.—The metal was found to have puddled, and balled in every way similar to their best samples, and in the same space of time, while it appeared more glossy, smoother and freer from defect. The loss on the charge, which was of four hundred weight, was twenty four lbs. The iron was rolled into merchant bars, and also wrought into horse shoes, etc., without showing the least flaw or crack.

"I now thought," says Mr. Wall, "that the time of experiment was over, and that the object of my solicitude was attained, but I was mistaken. The two managers were confined to their houses by sickness. Accordingly, specimens of the metal were forwarded to them. The messenger, on his return, stated that the result was very satisfactory; but that they wished the process to be further proved on the refuse cinder alone, without any admixture of pig metal." Agreeable to this message, a second experiment was made, nothing but the *pure unalloyed* refuse was put into the charge, which was the same in quantity as on the previous trial. In this case the charge was fifteen minutes longer puddling; and required more time to boil before balling, which was slower, though equally good. There was no other difference observable during the operation. On its being drawn, the following were the results: The loss on the 400 weight was found to be 48 lbs. "The metal rolled," says Mr. Wall, "like a lump of butter;" it cleared well of its cinder when passing the rollers, and came out perfect bar iron. A fine regular surface glistened beneath the thin scale with which it was covered. It was ball-furnaced, re-rolled into merchant bar, and afterwards worked up like the former, into horse shoes, without flaw or crack, though punched cold. On being compared with the ordinary merchant bar, it was pronounced to be but slightly inferior in strength, with the advantage of a smoother and more perfect surface. Such were the results of this novel experiment.

Whatever may be said of the wisdom of referring the adoption or rejection of the process to the issue of such a trial, is of little consequence. The challenge was accepted, and the bold attempt achieved. From a mass of rubbish, hitherto regarded as fit only for repairing roads, or for ships' ballast, had been extracted metal adequate to all the ordinary purposes to which the merchant bar was applied. Honest prejudice, however strong, would have given way, and generously acknowledged its defeat. But pride is invincible, and jealousy bids defiance to proof. In vain are the well meant intentions of patriotic individuals clearly shown; or the advantages of a discovery obvious and incontestible. In vain is the credit of introducing a superior article into the market held out as a motive; or the frequent and dreadful evils which will be warded off, portrayed. The vilest trash may be palmed on a confiding public; life and limb may be in hourly jeopardy; boilers may burst; vessels blown up in high air; and the wail of victims may be borne across the waters; it will beat against the "dull, cold" ear of selfishness as unavailing as the surge against the rocky shore.

But enough. Although reason was convinced, and facts brought out which, however astounding, prejudice was compelled to admit the battle was lost. Dowlais was to be freed from the *intruder*, and his system scattered to the winds.*

In conclusion, we trust that the facts which have been recoreed in these few pages, with the testimonies adduced, will have sufficiently established the truth of our leading assertion. To characterize an invention, as forming an *epoch* in the annals of science, may appear a bold expression; but when we consider the vast importance of the *primary* object of its operations, and the well authenticated phenomena we have detailed, the expression will hardly be deemed unwarranted.

"On the employment and application of *iron*, is founded every important step which marks the progress of the human race from barbarism to civilization. The difficulties which its reduction from a state of ore presents, the variety of conditions necessary for its being wrought into useful forms, and the pre-eminent advantages it possesses for the construction equally of the simplest tool and the most complex machine; all combine to excite the energies of a people, and impel them to mental activity and civilization. As gold and jewels are hence the type of ignorance and barbaric pomp, so iron is the greatest material source of intelligence and industry." An invention, therefore, to facilitate and simplify the manufacture of so precious an article, which augments its product, and improves its quality, cannot be too highly rated. Now, these effects we hesitate not to claim on behalf of Mr. Wall's patent. We have not hazarded bare assertions, nor assumed doubtful propositions, but have merely stated facts, with their respective dates. To have expected that it would have been adopted without demur, or escape opposition, would have been illusory, and have betrayed an ignorance of the records of science and of the history of social progress. Mr. Cort, on introducing his great improvement, was assailed with the bitterest acrimony, and his process of *puddling* was scouted as a chimera. Still, *magna est veritas*—whatever is founded upon just principles must eventually prevail, and all opposition, whether from ignorance or prejudice, from motives of jealousy or self-

* Besides these adverse circumstances above mentioned, there were many others inconsistent with a fair trial. The puddling furnaces assigned to Mr. Wall for his experiments, were construed for white metal, which balls without boiling. The electrised metal boils thin and swells much. The consequence was, that as it was worked in such furnaces, it ran out at the rake-hole, and over or through the bridges. This waste proceeded to such a degree, that the workmen were constantly piling up large blocks of lime stone, to prevent the metal totally running out. Now lime, as it is well known, is calculated to deteriorate the quality of iron, but failed in this instance doing so, as the metal, in puddled bar, was afterwards made into excellent rails, without the admixture of any merchant bar—a thing impracticable with their own puddled bar; as merchant bar, in such a case, to the extent of two-fifths, is indispensible. In addition to the above, the whole body of puddlers were in a state of hostility, from the imaginary fears that the process would reduce their labor. Indeed a considerable number of first-rate hands actually gave notice to quit if the process were continued.

interest, will serve only like the crucible to enhance its value, by proving the genuineness of its claims.*

(To be Continued.)

Licking and Lexington Railway.

We are glad to have noticed some indications of activity in Kentucky, to obtain the means for constructing the railway from the mouth of the Licking to Lexington. Let the people along the line of the proposed road engage in this subject, as intelligent and able planters should do, and the work will be done at an early day. If they manifest no desire for the road, they need hardly look to Cincinnati for aid. The Lexington observer sees things in their proper light. It says:

No one can for a moment doubt its importance, who will take the trouble to look at the map of the U. States, and see what is doing elsewhere in this mode of improvement, which is destined to be the principal mode of connection and conveyance between the agricultural and commercial regions of every country on earth—bringing the surplus products of labor *quickly* and *cheaply* to the prominent places of demand and consumption.

With this road completed, our hemp and other heavy articles could be transported *at half the present cost*, via the Cincinnati and Erie railroad, as contemplated to be continued to the great *northern* markets; and every dollar thus saved would go into the pockets of our farmers and factors. And when Louisville shall have met us at Frankfort with her great work, we shall have the *southern* markets also brought to our doors, and an uninterrupted tide of prosperity will place our own beautiful and healthy city in its destined high position as to population and wealth.

* It may perhaps have been expected, that in the course of the remarks on the experiments above detailed, allusion would have been made to some particular department of art, where the advantages derivable from the patent would be especially important and conspicuous. Such an idea did indeed occur; but, on a moment's reflection, it was deemed unnecessary to offer any suggestion. In a country, where the spirit of industry is so active, little more is required than to show the practicability of an improvement, to ensure its immediate adoption. There is, however, one branch which, from its national interest, deserves especial notice. In the cast metal used in the ordnance department, Mr. Wall's patent will, by the expulsion of all deteriorating alloys, give a tenacity and consequent security hitherto unattainable. That cumbersomeness, so unwieldy in pieces of large calibre, may be reduced at least one-seventh without in any degree impairing their strength or durability. Metal which has undergone the electrising process, turns like wrought iron, and its superiority of fibrous texture to common cast, is equal to what wrought iron possesses over steel. This was fully proved during an experiment at Dowlais. A small battery, consisting of six pairs, five by three and a half inches, was applied to a mass of iron, from which was afterwards formed a cast roller for the rolling mill. The quantity was about sixteen hundred weight. It answered beyond expectation; and the machine has been in constant operation for upwards of twelve months, and it is as efficient as on the day it was first set to work. This test will be deemed satisfactory, when the great uncertainty respecting those machines is considered. Little or no reliance could be placed on their strength; scarcely a day passed without one or more suddenly dropping assunder, or becoming unserviceable. I have a letter now lying before me, from a friend of the patentee's, residing at Dowlais, giving full details of the circumstance. But after so many testimonies on the subject, it is hardly worth while to give any more extracts.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, May 15, 1847.

CHAMPLAIN & CONNECTICUT RIVER RAILROAD—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the *Grading*, *Masonry* and *Bridging* of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,

T. FOLLETT, President.

Office of the C. & C. R. R. R. Co.,
Burlington, Vt., April 29, 1847. 3t20

Wall's Improvements in the Manufacture of Iron and Other Metals—Continued.

We continue the publication of this highly interesting and valuable pamphlet, in this number of the Journal. Several inquiries have been made for the pamphlet, since the publication of our last number. We will therefore say that it will be continued in the Journal, until the whole is published; and *thus* the *subscribers* to the Journal will be put in possession of what we deem exceedingly valuable information, upon a very important subject.

Scientific Prophecy.

Newton expresses his deliberate opinion that cohesion, light, heat, electricity, and the communication of the brain with the muscles, are all to be referred to one and the same cause—an ether or spiritus which pervades all bodies. We might smile at such an opinion from many quarters; and had Newton been only the author of the "Principia," we might, says the Dublin Review, perhaps think his head a little exalted by the excitement attending the close of an arduous labor, (though, in truth, the scholium, from which the above is extracted, does not appear in the first edition;) but when we consider his prediction, that the diamond would be found to be combustible, that the earth has between five and six times its weight of water, and others which have turned out correct, we feel something like a presentiment that the opinion just cited, may in some degree share the same destiny.

Boston, Concord and Montreal Railroad.

The Boston Traveller states that of the $240,000 new subscriptions to this road, about $200,000 were taken in New Hampshire, and it is confidently expected that the road to Sanbornton, 18 miles from Concord, will be opened by the 1st of October. The remainder of the road to Plymouth, not already contracted for, will be put under contract immediately.

Champlain and Connecticut River Railroad.

Contractors, and others interested in the construction of railroads, will find another field for their enterprize by referring to the advertisement of the above named road in this number of the Journal. We are much pleased to learn that this work is progressing so rapidly. The present indications are only in accordance with our own early opinions and expressions in relation to it, viz: that the trade of western Vermont is of too much importance to the people of Boston, for them to yield it without a much greater effort than is requisite to ensure the construction of this road. Boston will not rest in her efforts, in a north and northwesterly direction, until there are at least *three*—or *four* lines of railroad reaching Canada line, or Lake Champlain—and two to Montreal, and one to Ogdensburg, but no one of them will, in our opinion, be more useful to community, or profitable to the stockholders than this.

Passumpsic River Railroad.

The St. Johnsbury "Caledonian" has the following remarks upon the cheering prospects of the Connecticut and Passumpsic Rivers railroad. The Montreal road, which is spoken of below, is also in good prospect of success, and active operations will commence upon the line this Spring. The Caledonian says:

"We are glad to see the official development of the intensions of the Board of Directors of the Passumpsic and Connecticut Rivers railroad company—such as appears in the advertisement for contracting thirty-four miles, in addition to the section contracted for some time since, and upon a portion of which the grading has been completed. The intention is, we understand, to have some forty miles of the road completed, and the cars upon it in October, 1848. In the mean time, other portions of the route will be put into such a state of forwardness as circumstances and the funds of the company may warrant.

"The good success of our Canadian friends in regard to opening a road from Montreal to the line, will, we doubt not, stimulate the friends of the Passumpsic road, to use all necessary exertions in order to be ready to 'hitch on' at the earliest day possible.

"The proposals advertised, embrace thirty-four miles, which with the sections heretofore contracted, include the entire division between the mouth of White river and Wells river, forty miles.

"At a recent meeting of the Board of Directors, it was decided to proceed with all reasonable despatch with the construction of this portion of the road, and there is no reason to doubt but the cars will run to Wells river in the course of next year.

"This part of the road must do a heavy business immediately on its completion—traversing, as it does, the best portion of the valley of the Connecticut river north of Greenfield, Mass. There is not, in any part of New England, a more flourishing farming district, nor a greater diffusion of water power. The villages and towns along the line indicate a profusion of wealth and prosperity unusual for the country.

"In completing the locating survey, the line is found much more favorable than was indicated by the preliminary survey, and no grade upon this forty miles will exceed twenty-six feet per mile.

"It is understood that arrangements have been made for a connection and a general depot of the

three roads—the Northern, the Passumpsic, and the Vermont Central—at the mouth of White river."

The Vermont lines will be opened early next season to Burlington, and thus establish an important steam communication with Montreal, but they cannot expect to command at that city the great exports of bread stuffs from the west to Europe.

Judge Hopkins, in his able report, informs us that "the navigation of the St. Lawrence below Ogdensburg is dangerous and very expensive, and the freight on a barrel of flour from Ogdensburg to Montreal is thirty cents, and much of every season higher, besides extravagant insurance."

As has already been shown, adds the Courier, the entire outly for transportation to Boston from Ogdensburg will be but 21½ cents per barrel, or one-half the proposed charge of 43 cents per barrel, of course no line terminating at Montreal can enter into successful competition for the bread stuffs. The Canadian trade will be reached at Montreal; the great trade of the west can be effectually commanded only at Ogdensburg.

New York and Boston Direct Railroad.

We cheerfully give place to the following communication, and hope to see the work early commenced on the line.

For the American Railroad Journal.

Of the four applications for the extension of this line through Massachusetts, the Committee of the Legislature reported in favor of the one connecting with the Boston and Providence road, 11 miles from Boston, and the bill presented by them has passed the house, and has also passed the senate, and ere this has undoubtedly received the governor's signature, and pecome a law. This is the shortest of the four lines prayed for, and of course well suited for the "air line" road.

The Legislature of Rhode Island holds its session in June, when it is believed that the only remaining portion of the line, for which charters are needed, viz: 18 miles through Rhode Island, will be granted. Upon the route thus chartered, the distance from N. York to Boston, by actual survey, is 210 miles;—which distance, by further improvements in the line, will probably be reduced to 207 miles, being from 24 to 27 miles shorter than the line by way of Springfield. Means to complete the portion between New York and New Haven are already provided. From New Haven to the east line of Connecticut, subscriptions to the capital stock, to a considerable amount, have already been made; and now that it is deemed certain that the whole line will be chartered, the total amount required will doubtless soon be obtained.

Past experience shows that the most of the travel between Boston and New York will take the shortest and quickest route, to avoid the loss of time and casualties that attend the navigation of the Sound.

It is proposed to build the direct route in such a manner as to ensure a speed from five to ten miles more per hour than can be obtained on any existing road. This advantage, combined with the saving in distance, will give it much the larger portion of the through travel between New York and Boston. The revenue from this source is however not needed to sustain the road. The *way* business, it has been ascertained, is ample for this purpose. The population upon the portion between New Haven and Boston being greater per mile than upon the line via Springfield.

The roads upon the latter route are doing a good business, the great portion of which is local, or way travel, and freight, and will therefore continue to pay good dividends, even after the direct route is constructed. This is the opinion of the friends of those roads, as is evident from the expense which is being incurred to render the road more perfect between New Haven and Hartford, and from the movement which the Western railroad company is making towards laying a second track upon their road, between Springfield and Worcester. The corporation of which we are speaking, have thus far stoutly opposed the direct route. Public opinion, however, is settling strongly in favor of the latter. It is seen that it will not interfere with the proper business of any other road, and in addition to the reasons assigned above, of a saving in time, etc., it is becoming apparent that a line of road like that from Boston to Springfield, which is designed mainly for the transportation of freight, and as a means of communication westward towards Albany and Buffalo, cannot, without great interference, danger and delay, be made part of a main line of communication between Boston and New York.

In the charter obtained from the State of Connecticut, for the direct route, the right is given to bridge the Connecticut river at Middletown. This act has been asserted to be unconstitutional, the State not having the right to authorize the construction of a bridge over navigable waters, but a recent decision of the supreme court of the United States, puts this question at rest. It is declared that the States possess the same power as before the constitution was formed. Railways, as a means of intercommunication, are more important, in most cases, than the inland navigation of the country. Hence the same reason, which for years past has rendered the preservation of the navigation of our inland waters an object of peculiar care, is now applicable in a greater degree to railways. Fortunately, the improvements in draw bridges are such, that no material obstruction is caused to the navigation of a stream in crossing it with a railway. J.

Ogdensburg and Lake Champlain Road.

The Boston Courier learns with pleasure that Mr. James Hayward, the engineer of this route, has succeeded in finding a very cheap, direct and feasible route for this important line of railroad. The line which he recommends, and the directors have adopted, commences at Ogdensburg, and terminates at Rouse's Point, at the outlet of Lake Champlain. A line already chartered, connects Rouse's Point with the Central and Rutland railroads at Burlington, and thus a continuous line, unbroken by a ferry will be opened between Ogdensburg and Boston.

By extending the St. Johns and Laprairie railroad 20 miles more from St. Jons to Rouse's Point, a continuous railroad will also be opened between Montreal and Ogdensburg, and Montreal and Boston.—The Vermont and Cheshire lines will be opened next year, and so easy are the routes from Rouse's Point to Montreal, and from the same to Ogdensburg, that if the stock unsubscribed be taken this Spring, we may have next year a continuous road to both Ogdensburg and Montreal; and after breakfasting in Boston, reach either of them by a fast train the same evening.

The Ogdensburg railroad, adds the Courier, presents many attractions to the capitalist.

1st. It is unusually cheap, costing with a 60 lb. rail, but $19,000 a mile.

2d. The western half has no curves less than ten thousand feet radius, and the eastern half none less than five thousand feet.

3d. It is nearly an air line; of one hundred and fifteen miles, the entire length, one hundred are air line.

4th. It has no ascending grade from the west that exceeds 26 feet, and none ascending from the east, exceeding 39 feet to the mile.

5th. The despatch with which it may be constructed, and the favorable opportunity which presents itself to avail of the flood of emigrants now pressing into the country, to construct the line at low rates.

Receipts on Thirty-two English Railways.

The following statement, in continuation, shows an increase of $54,223 85—over the preceding two weeks; and an aggregate of $1,387,125 63.

RAILWAYS.	Length in miles.	Week ending March.	Amount. £	s.	d.	Week ending March	Amount. £	s.	d.
Arbroath and Forfar	15	13	218	8	4	20	257	11	6
Chester and Birkenhead	14½	12	497	15	2	19	521	5	5
Dublin and Drogheda	31	11	701	12	0	18	692	11	9
Dublin and Kingstown	6	16	610	14	2	23	590	9	2
Dundee and Arbroath	16¼	14	272	12	7	21	312	9	11
East Lancashire	28	13	740	10	3	20	845	9	7
Eastern Counties	126	14	8,716	10	3	21	8,892	4	9
Edinburg and Glasgow	46	13	3,327	7	10	20	3,343	3	5
Glasgow, Paisley and Ayrshire	51	13	2,339	2	3	20	2,126	6	8
Glasgow, Paisley and Greenock	22½	13	952	8	5	20	950	2	3
Great Western	221¾	14	15,311	13	1	21	16,254	4	2
Great Southern and Western—Ireland	56¼	13	1,018	0	10	20	1,200	11	7
London and North Western	333	13	34,960	9	10	20	35,887	17	10
London and South Western	92¼	14	5,977	5	3	21	6,336	19	5
London, Brighton and South Coast	95½	13	5,304	11	2	20	5,756	3	10
London and Blackwall	3¼	14	927	9	5	21	859	14	3
Midland, Bristol and Birmingham, Leeds and Bradford, Nottingham and Lincoln—4 roads	268½	13	16,990	12	4	20	17,414	10	3
Manchester and Leeds—including Bolton and Preston District	94½	13	7,665	19	0	20	7,713	7	9
Manchester, Sheffield and Lincolnshire	40	13	1,888	5	9	20	1,947	18	3
Newcastle and Berwick	7	13	640	0	1	20	725	13	7
Newcastle and Carlisle	61	13	2,094	19	9	20	2,151	16	6
Norfolk	58	14	1,530	17	3	21	1,552	0	6
North British—including Dalkieth Branch	72½	13	1,378	12	4	20	1,344	11	10
Preston and Wyre	19	13	547	14	4	20	560	16	4
South Eastern	143	13	5,650	13	3	20	6,844	16	0
South Devon	20	12	397	2	3	19	478	16	0
Shrewsbury and Chester	15	12	331	5	11	19	334	10	1
Taff Vale	30	13	1,294	5	2	20	1,474	6	4
Ulster	25	14	721	19	2	21	762	7	6
York and Newcastle	107	13	7,191	12	1	20	6,618	19	1
York and North Midland—with Leeds and Selby	155	13	5,699	14	6	20	5,790	13	2
Paris and Rouen	84	15	5,517	0	0	22	5,807	0	0
	2187¼		£140,346	13	0		£146,249	9	5
			$679,278	09			$707,847	54	

MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Nashua and Lowell Railroad Co, under the Act of April 16, 1846.

Capital stock, [was originally $380,000: was increased to lay a second track, in 1845, to]	$500,000	
Increase of capital since last report		
Capital paid in, per last report	500,000	
Capital paid in since last report		
Total amount of capital stock paid in	500,000	
Funded debt, per last report		
Funded debt paid since last report		
Funded debt, increase of, since last report		
Total present amount of funded debt		
Floating debt, per last report	The corporation is not in debt.	
Floating debt paid since last report		
Floating debt, increase of since last report		
Total present amount of floating debt		
Total present amount of funded and floating debt		
Average rate of interest per annum on do		
COST OF ROAD AND EQUIPMENT.		
For graduation and masonry, per last report [upon this point]	82,917 68	
For graduation and masonry, paid during the year, [for a second track not completed at our last annual report]	12,534 19	
Total amount expended for graduation and masonry [including new second track]		$95,451 87
For bridges, per last report, [included in the item for superstructure; the accounts not having been kept separately, it is difficult now to separate them]		
For bridges, paid during the past year	Not kept separate from superstructure.	
Total amount expended for bridges		
For superstructure, including iron, per last report, [this includes bridges]	126,704 04	
For superstructure, including iron, paid during the the past year, [including bridging for new track]	107,294 31	
Total amount expended for superstructure, including iron		233,998 35
For stations, buildings and fixtures, as per last report		
For stations, buildings and fixtures, paid during the past year, [carried to miscellaneous expense acc't]		
Total amount expended for stations, buildings and fixtures	23,757 53	
For land, land-damages and fences, per last report.		
For land, land-damages and fences, paid during the past year		
Total amount expended for land, land-damages and fences	79,074 15	
For locomotives, per last report		
For locomotives, paid during the past year		
Total amount expended for locomotives, [except what has been carried to depreciation account]	21,759 69	
For passenger and baggage cars, per last report		
For passenger and baggage cars, paid during the past year		
Total amount expended for passenger and baggage cars	5,146 71	
For merchandize cars, per last report		
For merchandize cars, paid during the past year		
Total amount expended for merchandize cars	20,101 09	
For engineering and other expenses, per last report.	20,539 11	
For engineering and other expenses, paid during the past year	171 50	
Total amount expended for engineering and other expenses		20,710 61
Total cost of road and equipment	500,000 00	
CHARACTERISTICS OF ROAD.		
Length of road	75,389·2 feet.	
Length of single track	6,329 feet.	
Length of double track	69,060 2 feet.	
Length of branches owned by the company, stating whether they have a single or double track	No branch owned by Co.	
Weight of rail per yard in main road	56 lbs.	
Weight of rail per yard in branch roads		
Maximum grade, with its length in main road	12·7 ft. per mile; 4,133 ft.	
Maximum grade, with its length in branch roads		
Total rise and fall in main road	73·5 feet.	
Total rise and fall in branch roads		
Shortest radius of curvature, with length of curve in main road	636 feet, 100 feet long.	
Shortest radius of curvature, with length of curve in branch roads		
Total degrees of curvature in main road	770 deg.	
Total degrees of curvature in branch roads		
Total length of straight line in main road	6·72 miles.	
Total length of straight lines in branches		
Aggregate length of truss bridges	400 feet.	
Whole length of road unfinished on both sides		
DOINGS DURING THE YEAR.		
Miles run by passenger trains	28,515	
Miles run by freight trains	18,615	
Miles run by other trains	1,740	
Total miles run	48,870	
Number of passengers carried in the cars	192,272	
Number of passengers carried one mile	192,272 = 2,678,713	
Number of tons of merchandize carried in the cars	126,502 1968-2000	
Number of tons of merchandize carried one mile	126,502 1968-2000 = 1,835,129 1040-2000	
Number of passengers carried one mile, to and from other roads	158,472 = 2,230,838	
Number of tons carried one mile, to and from other roads	123,387 168-2000 = 1,762,935	
Average rate of speed adopted for passenger trains, including stops	22 miles.	
Average rate of speed adopted for freight trains, including stops	12 miles.	
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile	65,108 75-2000 = 976,6314	
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile	132,332 42-2000 = 1,984,986 30	
EXPENDITURES FOR WORKING THE ROAD.		
For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron: [Including 1655 feet wood construction at Lowell]	$22,701 12	
For repairs of truss bridges	180 72	
For renewals of iron, including laying down		
For wages of switch-men, gate-keepers and flag-men	913 00	
For removing ice and snow	140 00	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses	1,005 73	
Total for maintenance of way	24,940 57	
MOTIVE POWERS.		
For repairs of locomotives	2,081 22	
For new locomotives to cover depreciation, [none within the past year; but in 1844, the engine Lion was purchased, and carried to depreciation acc't]	6,450 00	
For repairs of passenger cars	2,396 76	
For new passenger cars to cover depreciation	None within the last year.	
For repairs of merchandize cars	4,901 86	
For new merchandize cars to cover depreciation	637 98	
For repairs of gravel and other cars	36 62	
Total for maintenance of motive power	10,054 44	
MISCELLANEOUS.		
For fuel and oil	8,203 57	
For salaries, wages and incidental expenses, chargeable to passenger department	6,028 55	
For salaries, wages and incidental expenses, chargeable to freight department	12,402 32	
For gratuities and damages	1,150 00	
For taxes and insurance	1,210 57	
For ferries		
For repairs of station building, aqueducts, fixtures, furniture	3,153 28	
For interest		
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company	Nothing.	
For amount paid other companies as rent for use of their roads, specifying each company	Nothing.	
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	4,136 13	
INCOME DURING THE YEAR.		
For Passengers:		
1. On the main road exclusively, including branch owned by company	27,982 11	
2. To and from other roads, specifying what: [Concord]	31,110 37	
For Freight:		
1. On main road and branches owned by company.	32,084 50	
2. To and from other connecting roads:	31,529 75	
U. S. mails, $2,249 20. Rents, $6,12 17. Interest and miscellaneous, $1,928 45	4,789 82	
Total income	127,496 55	
Net earnings after deducting expenses	57,217 17	
DIVIDENDS.		
Surplus not divided	7,217 17	
Surplus last year	5,448 95	
Total surplus	12,666 12	
ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:		
Road and bridges		
Buildings		
Engines and cars		

DANIEL ABBOTT,
CHARLES F. GOVE,
THOMAS B. WALES,
JESSE BOWERS,
} Directors of the Nashua & Lowell Railroad.

Baltimore and Pittsburg.

The Pittsburg Gazette, of Wednesday last, contains the following official report of the proceedings of the Stockholders of the Pittsburg and Connellsville railroad company, held on the 27th ult.

STOCKHOLDER'S MEETING.

Pittsburg and Connellsville R. R. Co.,
Pittsburg, April 27th, 1847.

In pursuance of adjournment, the Stockholders of the Pittsburg and Connellsville railroad company, met this day at 3 o'clock P. M., at Philo Hall, and were called to order by Wm. Eichbaum, Chairman.

Wm. M. Darlington was appointed Secretary.

The proceedings of a public meeting of the citizens of Baltimore, held in that city on the 3d inst., and of a meeting of the Stockholders of the Baltimore and Ohio railroad company, held on the 5th inst., were then read for the information of the meeting.

Neville B. Craig, Esq., from the committee on the subject of the Baltimore connection, presented the following report and resolutions which were unanimously adopted:

The committee appointed at the last meeting of the stockholders, have had under consideration the course of action proper to be adopted at this time; and although entirely conscious of the great impatience of many of their fellow citizens, and of their eager desire to embark in some other scheme of improvement, and to abandon one which hitherto has been productive only of repeated delays and disappointments, feel disposed to make one effort more to complete an arrangement by which the very liberal charter under which we act shall be made to contribute to the prosperity, not only of the cities of Pittsburg and Baltimore, but of the intervening country.

In arriving at this conclusion the committee frankly acknowledge that it is influenced as much by the kind and friendly feeling manifested by the citizens of Baltimore at their late meeting, and by a respect for the wishes and interests of those of our own company who reside along the route of the proposed improvement, as by their own judgment on the subject.

The committee feel, however, that too much time has already been spent in fruitless negotiations, and that the subject now demands a speedy and final decision.

The committee, therefore, offers the following resolutions:

Resolved, That the Stockholders of the Pittsburg and Connellsville railroad company, in consideration of the very friendly disposition manifested towards our proposed work by the merchants and other citizens of Baltimore, and especially from a regard for the interests of those of our own number residing along the Youghiogany river, who look upon the work as the last promise of a participation in the benefits of the great scheme of internal improvements, are disposed to make one effort more to complete an arrangement with the Baltimore and Ohio railroad company. Therefore,

Resolved, That the whole subject be referred back to the Directors of this company, with full power to act in relation to this whole matter, and to report the result of any correspondence or inferences which they or any committee appointed by them may hold with any other persons, to a meeting of the stockholders of this company on the 19th day of May next.

Resolved, That when this meeting adjourn it will adjourn to meet again on Wednesday, the 19th day of May, 1847, at 3 o'clock P.M. to take into consideration the report which will be made by the directors, and also to consider the law passed at the last session of the legislature in relation to this company, and to adopt such measures as may be determined to be expedient and proper.

A. W. Loomis, Esq., was excused from serving on the committee on the subject of a western railroad, and Joshua Hanna was, on motion, substituted in his place as chairman, and Wm. Ebbs was appointed a member of said committee.

The Hon. J. C. Plumer, of Westmoreland county, presented the following proceedings of a meeting held at West Newton, which were, on motion, ordered to be published with the proceeding of this meeting.

On motion the meeting adjourned.

WM. EICHBAUM, Chairman.
WM. M. DARLINGTON, Sec'ry.

In pursuance of public notice, a meeting of the Stockholders in the Pittsburg and Connellsville railroad company, and of the citizens of the surrounding country generally, was held at the schoolhouse in the borough of West Newton, on Thursday, the 22d of April, 1847, to deliberate on, and express their sentiments respecting a connection of said company with the Baltimore and Ohio railroad company. The meeting was called to order by J. C. Hanna, Esq. nominating Col. J. B. Oliver to the chair, and D. F. Mc Conaughey, Secretary.

The object of the meeting being made known, several addresses were delivered by gentlemen present, when, on motion, a committee of three, consisting of Abel J. C. Plumer, Major James Gardiner and Amos Biggs, Esq., were appointed by the chair to draft resolutions expressive of the views of the meeting.

The committee, after having retired a short time, reported the following:

Whereas, The Baltimore and Ohio railroad company have declared their determination to carry their road to a southern terminus on the Ohio river, but have expressed a willingness to aid liberally in making a branch to the city of Pittsburg—and, whereas, a connection of the cities of Pittsburg and Baltimore by railroad is most desirable, therefore,

Resolved, As the sense of the Stockholders of the Pittsburg and Connellsville railroad company, residing in West Newton and vicinity, a difference of opinions as to the route or location of the Pittsburg and Connellsville railroad to connect with the Baltimore and Ohio railroad company, and the city of Baltimore, ought not to prevent the construction of said road with the least possible delay, and we advise a compromise of all difficulties heretofore raised on the subject.

Resolved, That we approve of suggestions thrown out by the Baltimore and Ohio railroad company, as to the subscription of stock sufficient to ensure the completion of said road, and thus make a connection between the cities of Pittsburg and Baltimore, by railroad, complete. And we pledge ourselves as Stockholders of the Pittsburg and Connellsville railroad company, to raise by further subscription, our proportion of seven hundred and fifty thousand dollars. And we are of opinion that this company ought at once to guarantee the aforesaid sum.

Resolved, As the sense of this meeting, that the Board of Managers of the Pittsburg and Connellsville railroad company ought to enter into further negotiation with the Baltimore and Ohio railroad company, and the city of Baltimore, on the aforesaid subject, with a determination to overlook the past as to route, and harmonize all differences, that the road may be constructed as soon as possible.

Which, being read, were unanimously adopted by the meeting. And, on motion, Abel J. C. Plumer, Major James Gardiner and Randle Johnson were appointed a committee to lay the proceedings of this meeting before the Stockholders of the Pittsburg and Connellsville railroad company, who are to assemble in the city of Pittsburg on Tuesday, the 27th inst., and request their adoption.

J. B. OLIVER, Chairman.
T. W. MCCONAUGHEY, Sec'y.

Triumph of American Mechanics.

AN INTERESTING COMMUNICATION.

The Baltimore Sun has been furnished with the annexed highly interesting letter, which we give to our readers entire—believing that it will be perused with the highest satisfaction by all who are interested in the advancement of American mechanics.

ST. PETERSBURG, March 20, 1847.

Visit of the Emperor Nicholas to the Workshops of Messrs. Harrison, Winans and Eastwick.

On the 10th of this month, his majesty the Emperor Nicholas I, visited the establishment of the American contractors, Messrs. Harrison, Winans & Eastwick, at Alexandroffsky, six miles from St. Petersburg, known as the "Alexandroffsky Head Mechanical Works of the St. Petersburg and Moscow Railway," and where is being constructed the machinery for the railway above mentioned.

His majesty had fixed 12 o'clock for leaving the railway station at St. Petersburg, and punctual to the hour arrived at the appointed place, and after spending a few moments in examining the locomotive at the head of the train, started for the workshops at Alexandroffsky, where the train arrived in about eight minutes. His majesty was accompanied by his imperial highness, the Grand Duke Alexander Nicholaivitch, the heir to the throne; his imperial highness, the Grand Duke Constantine Nicholaivitch, the second son of the Emperor; his highness the Duke of Leuchtenberg, son-in-law of the Emperor; field marshal Prince Paskevitch d'Erwan, viceroy of Poland; his excellency Prince Menschikoff, minister of marine, and head

admiral of the Russan navy; his excellency Count Chernicheff, minister of war; his excellency Count Orloff, minister of police; his excellency Count Keinmichel, minister of way, communications and public buildings; his excellency Count Disalleff, minister of the imperial domains; his excellency Gen. Rockasoffsky; Admiral Lufke; the counsellor of state; Gen. Fischer, director of the department of railways; Col. Kraft, director of the southern division of the St. Petersburg and Moscow railway; Col. Melnikoff, director of the northern division of the St. Petersburg and Moscow railway, and Major G. W. Whistler, engineer of the St. Petersburg and Moscow railway.

His majesty was received at the door of the works by the contractors, and after the usual presentations, proceeded to examine the works, entering at the south door of the great machine shop. The distinguished visitors first went to the upper floor, where all the small work for the locomotives are prepared for the erecting shop. His majesty examined everything very closely in this part of the works, making many inquiries of the contractors, who explained all the various operations that were going on. His majesty expressed himself much pleased with the beauty and finish of the parts of the locomotives. He much admired the very beautiful and efficient tools which the contractors have adapted to the various branches of the works, and frequently called the attention of his ministers to them. His majesty, after making the entire circuit of this room, next visited the lower floor, where the cylinders, driving wheels, frames, and all other heavy parts of the locomotive are prepared; here the same minute inspection was also made as above stairs —after which the party proceeded to the erecting shop, where the engines are finally put together. Here was to be seen the locomotive in every stage, from the boiler and parts just brought in, to the full, finished machine, cleanly painted and beautifully polished His majesty expressed himself much pleased with the order and neatness of this department, and after witnessing the testing of the boiler of the locomotive by hydraulic pressure, proceeded to the boiler shop; here his majesty, among other things, examined the machine for forming copper tubes, and had the process explained to him; also, the operations of the self acting punching and shearing machines for preparing boiler plates, all of which were in active operation. From the shop, the distinguished visiters went to the iron foundry, and here his majesty saw the process of casting a large driving wheel, which seemed to interest him very much.

The shops where the wheels, axles and trucks are made for the tenders and freight cars was next visited, and all parts worthy of attention examined; from thence to the steam forge hammer shop, where the steam forge hammer, from its novel principle, elicited much attention. His majesty then went to the magazines for finished work; here were shown more than one hundred locomotives, quite complete, with all their finished parts cleanly polished, and the whole of the machine painted of an uniform color. His majesty expressed himself much pleased with the appearance of the work, and was surprised that so much had been completed in so short a time; eighty of the locomotives have been built entirely during the year 1846, and the establishment was turning out six locomotives and tenders every month. His majesty re-entered the railway train at the magazine, and went by the railway about one mile to the new works erected by the contractors for making the freight and passenger cars. Here his majesty alighted and proceeded to the shop where the wood is prepared entirely by machinery for the freight cars. Here everything was examined with the same attention as at the locomotive department, and the beauty and efficiency of the machinery commented upon in strong terms by his majesty, all the various operations being explained by the contractors. In this shop there are prepared every day, five sets of wood work for the usual size eight wheel box cars, such as are on the American railroads.

From the preparing shop, his majesty and suit went to the erecting shop for freight cars, where the parts are brought together after coming from the machines. In this department twenty-five men put together five box cars complete every day. By this it will be seen how little is left to be done by hand after the parts come from the machines. From this shop his majesty walked to the shop for making passenger cars, where was seen this work in all its stages, from the commencement to the entirely finished carriage. This branch of the work is just fairly in operation and now ready to turn out four of the usual sized eight wheel passenger cars every month. After examining all that was worthy of attention, the Emperor proceeded to the railway carriage, having then seen the whole of the various operations going on at the Alexandroffsky Head Mechanical Works. Previous to getting into the railway carriage, his majesty thanked the contractors for the pleasure he had received in viewing their works, and after shaking them by the hand, the train was put in motion for St. Petersburg, where it arrived about half past three o'clock. The engine which brought his majesty to the works and back, was, by request, run by one of the contractors. On the following day, as a testimony of his majesty's satisfaction, he promoted Colonels Kraft and Melnikoff to the rank of Generals, and ordered the cross of St. Anne to be conferred upon Major G. W. Whistler, the American engineer; also that valuable diamond rings should be presented to the contrctors, Messrs. Harrison Winans & Eastwick.

The establishment of Messrs. Harrison, Winans & Eastwick employs at present, 1,920 workmen, including 1,613 Russians, 121 Germans, 164 Swedes, 17 English, and 5 Americans, which number embraces the whole number of foremen and workmen.

The contracts of Messrs. Harrison, Winans & Eastwick embrace 162 twenty-five ton locomotives and tenders; 5,300 iron trucks, for eight wheel cars; 2,500 eight wheel freight cars; 70 passenger cars, and 2 improved cars on 16 wheels, 80 feet long. Out of which are now finished, 108 locomotives with their tenders; 6,200 wagon trucks; 906 freight cars, and 2 passenger cars.

ITEMS.

Minersville.—The intelligent and enterprizing citizens of Minersville seem determined to keep pace with the neighboring towns in the region, in the way of improvement. It is gratifying to see the manifestations of thrift and prosperity every where evident in this thriving borough. New, neat and comfortable buildings are springing up in all parts of the town, as if by magic. In 1840, the population of Minersville borough was 1,265.—According to the present estimate of well informed persons, it now contains over 2,500 inhabitants, having fully doubled its population in seven years. Minersville is one of the best markets in the coal region, and this region is among the best markets in the State for all agricultural products.—*Anthracite Gazette.*

Steam Communication with the West Indies.—We understand that a company has recently been formed, in our city, with a capital of some $60,000, the whole of which has been taken, for the purpose of establishing a communication with Havana. It is in contemplation to build a suitable boat for this purpose, which will also touch at Key West. —*Charleston Courier.*

Fatal Railroad Accident.—We learn from the Lowell Courier that on Saturday evening about seven o'clock, as the cars from Concord were approaching the city, near the jail, the engineer discovered a man upon the track. He rung the bell, to gave warning, and also reversed the engine; the man saw the cars coming, but was apparently so much frightened that he did not know where to go, although there was plenty of room either side of the track. The train struck him and passed over his body, mangling him in a shocking manner. His name was Edward Croghan, and he resided on Lowell street. He was about sixty years of age, and has left a wife and five children.

The Southern Telegraph.—The communication with the south by means of the telegraph, is still frequently interrupted, by the wires being detached at Gray's ferry bridge, in order to open the draw, to allow vessels to pass through. This vexatious hindrance to the permanent advantage of the southern line will soon, however, be removed, as the cord is to be conducted over the wire bridge, and along the road west of the Schuylkill, to a point where the junction with the line reaching to Baltimore will be made. The posts are already planted along the new route.

Reading and Pottsville Telegraph.—This line is expected to go into operation as far as Pottsville by the 15th inst. There will be stations at those places, and one has already been opened at Richmond. The charge will be half a cent each work to Richmond, one cent a word to Reading, and a cent and a half each word to Pottsville. No message to be counted less than ten words.

Improvement to the Magnetic Telegraph.—Colonel H. W. Cleveland, who has been connected with the line of Magnetic Telegraph, since their first establishment, as an assistant, has we learn by a recent discovery, overcome the difficulty heretofore labored under, of crossing water courses, by a peculiarly insulated wire which is passed in a leaden pipe under water. One of these wires or improvements, has recently been placed under the draw bridge at Gunpowder river, and has been in successful operation for several days. It is, we believe, the intention of this company to adopt this mode of connection at the several draws and streams along the line, which will obviate much the vexatious interruptions heretofore experienced. If the North river and other rivers can be crossed with this improvement, it will be one of great advantage.

From Rochester Direct to England.—A correspondent of the Rochester Democrat indulges in some rather high strung speculations in regard to the future lake trade. We are not sure, says the editor of the Democrat, but that, if the St. Lawrence be declared free, his anticipations may be realized. In case that measure, which is said to be the favorite scheme of the new Governor General, is effected, Rochester will become the most important point on the lake. Situated in the centre of supplies, and doing the most extensive business in bread stuffs in the world, with a safe and capacious harbor six miles in length, she will soon become the great emporium of traffic on lake Ontario. She has plenty of lumber for ship building, an abundance of material for constructing mills and unlimited water power for propelling machinery. Flouring mills can be constructed on the lower water power at half the cost elsewhere, because any amount of the best kind of stone can be had on the spot. While the upper mills will continue to trade with New York city, as at present, through the Erie canal, the lower ones will do an equally large business with Montreal or with England direct. The river for six miles is deep enough to float ships of the largest class, and there is scarcely a rod from the pier to the landing where vessels might not be perfectly safe at anchor, the banks varying from 20 to 50 feet in height. One thousand vessels could be moored along the banks of the river, and still have a channel sufficiently wide for two ships to pass.

Hydraulic Engine.—Mr. Elisha Bishop, of Jamestown, New York, has invented and furnished us with a description and drawings of an engine on a novel plan, but on true scientific principles, and calculated to supply the place of water wheels for propelling machinery, etc. We shall not attempt a full description without an engraving, but merely say that it consists in part, of two large vertical cylinders with pistons and rods extending up to two cranks on the two ends of a horizontal shaft above. The bottoms of the cylinders are furnished with large disk valves, of peculiar construction, and so arranged that while water is admitted into one of the cylinders from a water pipe or penstock at the bottom, the water is discharged from the other, and vice versa, alternately. Thus while the force of the water is applied to raising one piston, the other is forced down by atmospheric pressure equal to the weight of the water contained in the cylinder, and the valves are reversed by a simple connection of machinery, on the approach of each piston to the bottom. No other packing is required, than that of an ordinary pump piston, and consequently there will be but little friction. The power is communicated from a drum or gear wheel mounted centrally upon the crank shaft. It may succeed well.—*Sci. American.*

The Railroad.—On Saturday, the directors of the Columbus and Xenia (or Springfield) railroad met with the city council of this city, and the commissioners of the county, and had a consultation on the future action in relation to this road. Every thing went off in the most harmonious manner, each expressing the greatest anxiety that the road should be made.

The old directors of the road offered their resignations, to give the city and county an opportunity of electing new ones, and a committee of one from each ward on the part of the city, the three county commissioners, and five from the stockholders of the road were appointed to meet on Tuesday, and propose a new set of directors. This done, a re-survey will commence, and the work be put under contract as soon as possible. The city council also appointed a delegation of two, (Joseph Ridgway and Dr. Goodale) to go to Wheeling, and meet the president, (Mr. Mc Lane) and directors of the Baltimore and Ohio railroad company, who are to be there on Wednesday, in relation to extending the Baltimore and Ohio railroad to Wheeling, if it should be a point, as the law contemplates, or a point near there, directly through Ohio to Columbus, and pointing to St. Louis.

It is expected that Mr. McLane will visit Ohio and reconnoiter as far as Columbus and perhaps farther west. A strong invitation is sent for him, and we have pretty fair assurances that he will find it to the interest of the company, of which he is president, so to do. —*Ohio Statesman.*

BOUND VOLUMES.

Volumes of this Journal, for the Years **1838** *to* **1846**, *INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.*

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OF THE RAILROAD JOURNAL.

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THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.
1y10 New York.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*
1y48 77 Pine St., New York.

LAWRENCE'S ROSENDALE HYDRAulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address
SAM'L KIMBER & CO.,
Willow Street Wharf,
4tf Philadelphia, Pa.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to
FULLER & BROWN, Agent,
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10t39

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, *also*, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf

PIG AND BLOOM IRON.—THE SUBSCRIbers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by
A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

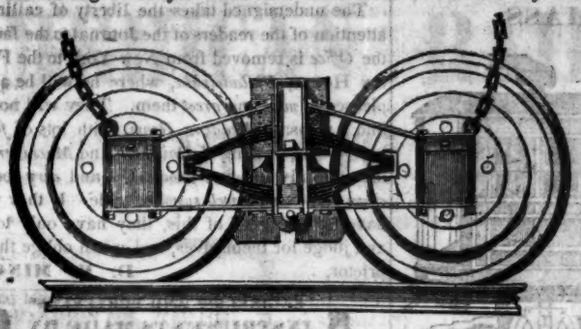
TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the *Grading and Masonry* of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

The remainder of the line from Bowdoinham to Angusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.
ENGINEERS OFFICE, K. & P. R. R.
Brunswick, Me., April 6, 1847. 1m16

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH, *Jersey City, November* 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, 1y19 Sup't Motive Power.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3½	8	3	8½	16	–	27	11-16	13¼
14	3¼	6	11	7½	12	8	17	9-16	10¼
15	2¾	5	2	6¼	9	4	13¼	1-2	7¼
16	2¼	4	3	6	3	8	10¼	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 *cwt. for every lb. weight per fathom, so that a rope weighing* 5 *lbs. per fathom would safely lift* 3360 *lbs., and so on in proportion.* 1y24

THE SUBSCRIBERS, AGENTS FOR the sale of Codorus, Glendon, Spring Mill and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

RAILWAY IRON.—THE BEST QUALITY of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,
Jan. 2. [1tf] 68 Broad St., New York.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS,
ja45 *Reading, Pa.*

TO RAILROAD COMPANIES AND MANUfacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO.,
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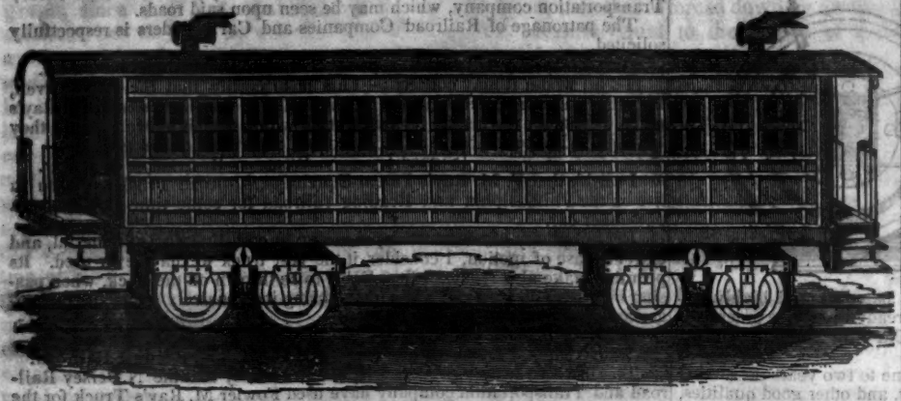
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York.

DAVENPORT & BRIDGES'

CAR WORKS, CAMBRIDGEPORT, MASS.

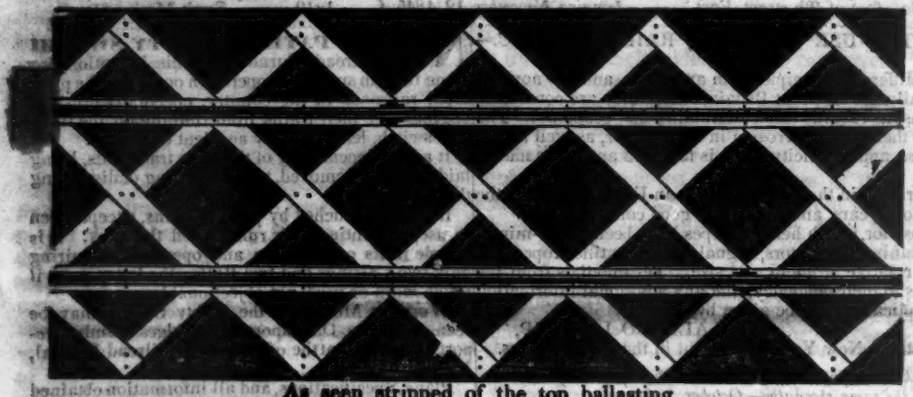


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at $10 =	$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at $13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts	101 25
Workmanship free of patent charge	600 00
Cost of one mile including the laying of the Rail	$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

FRANKLIN HOUSE,

No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that the *Office* is removed from New York to the FRANKLIN HOUSE, *Philadelphia*, where he will be always pleased to *meet* and *greet* them. They will not only find a pleasant *Reading Room*, with lots of *foreign* periodicals, treating of *Railroads* and *Machinery*, but they will always find *good-sized* and *airy* rooms—*clean beds*—and a *well supplied* table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor,

D. K. MINOR.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and
ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
1y25 28 Platt street, New York.

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MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equal in point of quality to any other manufactured.

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Pres't. Mt. Savage Iron Works,
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TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
FRENCH & BAIRD, Philadelphia. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
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JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.